

REMARKS

Entry of the foregoing amendments is respectfully requested. Claims 1, 2, 11, 17, 18 and 20 have been amended. Claims 13 and 15 have been canceled. Claims 1-12, 14 and 16-20 are currently pending in the application. Favorable reconsideration and allowance of this application is respectfully requested in light of the foregoing amendments and the remarks that follow.

1. Objections To the Drawing Figures

In the Office Action, the Examiner has objected to the drawing figures as failing to show certain objects recited in the specification.

Applicants respectfully traverse the objection to the drawing figures. More specifically, with this response, applicant has amended the specification in three locations to correct informalities in the reference numbers used at each location to correspond to what is shown in the drawing figures. Additionally, with this response applicant submits a corrected Fig. 5. including the reference number 52 as recited in the specification.

As a result of these amendments to the specification and the drawing figures, the applicant respectfully requests that the Examiner withdraw the objection to the drawing figures.

2. Claim Rejections Under 35 U.S.C. § 102(b)

In the Office Action, the Examiner has rejected claims 1-3, 6, 11-13, 16-18 and 20 under 35 USC § 102(b) as being anticipated by Ahs U.S. Patent No. 5,681,152 (the '152 patent).

Applicants respectfully traverse the Examiner's rejection of claims 1-3, 6, 11-13, 16-18 and 20 based on the '152 patent. More specifically, claim 1 as amended requires a rod disposed within the housing and operably connected to the vibration generating mechanism at one end to enable the rod to move in direct correspondence to the oscillation of the vibration generating means. In addition, claim 1 requires that the pumping chamber be formed of a rigid material and define an enclosed interior space having at least one fluid inlet and a fluid outlet. The amendments to claim 1 made in this response find support in the specification on page 4, lines 10-29, page 5, lines 3-26, and in Fig. 1.

In contrast, the '152 patent clearly illustrates an operating member 9 disposed on one side of a diaphragm 8, and a plunger 12 engaged with the opposite side of the diaphragm 8 through the use of a spring 14. However, as stated in the '152 patent in Col. 2, lines 17-29, the spring 14 is unable to move the plunger 12 quickly enough to keep the plunger 12 in continual engagement with the diaphragm 8, defining a space 16 between the diaphragm 8 and the plunger 12. The creation of this space is essential to the operation of the pump as the fluid to be pumped enters and fills this space and is subsequently forced through the hole 11 in the diaphragm 8 by the plunger 12. In other words, without the lag of the plunger 12 as caused by the spring 14, no space 16 would be present for the fluid to enter for dispersal through the hole 11. Therefore, the '152 patent does not include a rod operably connected to a vibration generating means to move on direct correspondence with the oscillation of the means, as required by claim 1.

In addition, the device has a casing 1 formed with a bottom 2 and an enclosing wall 3. However, the wall 3 defines a free edge defining a step-like recess 7 for receiving the diaphragm 8 and the driving member 9. Thus, because the casing 1 essentially defines an open end on one side of the casing 1, the casing 1 does not define an enclosed interior space as required by the pumping chamber recited in claim 1. Further, even if the driving member 9 is considered to be the enclosing wall of the casing 1, claim 1 requires that the vibration generating mechanism be disposed in the housing adjacent the pumping chamber, not as part of the chamber. If the driving member 9 were moved adjacent the casing 1, the device would not be operable, such that the pump of claim 1 is not anticipated by the '152 reference.

Further, concerning claim 2 as amended, the outlet chamber is recited as being enclosed and having an inner end within the enclosed interior of the pumping chamber and an outlet end extending outwardly from the enclosed interior space. The amendments to claim 2 made in this response find support in the specification on page 5, lines 3-26, and in Figs. 1 and 2.

In contrast, in rejection claim 2, the Examiner stated that the outlet chamber is defined by the space defined by elements 15 and the empty area of element 9, with the inner and outer faces of the empty area defining the inner and outer ends of the outlet chamber. However, because the

outlet chamber is defined by the Examiner as consisting only of the open area within the element 9, this arrangement does not illustrate any enclosed outlet chamber as required by claim 2.

As a result, the subject matter of claims 1 and 2 is neither shown nor suggested by the '152 patent, such that claim 1, and claims 2, 3, 6, 11-13, and 16, each of which depend ultimately from claim 1, are allowable.

Further, claim 17 as amended requires that the plunger extend at least partially through the fluid outlet. The amendments to claim 17 made in this response find support in the specification on page 6, lines 6-15, page 7, lines 3-12, and in Figs. 2 and 5.

In contrast, the plunger 12 of the '152 patent does not extend at least partially through the outlet as required by claim 17, such that the subject matter of claim 17 is not shown or disclosed by the '152 patent. For this reason, claim 17, and claim 18 that depends from claim 17, are allowable.

Additionally, claim 20 has been amended with this response to require a rigid enclosure having a pumping chamber, a fluid inlet and a fluid outlet, and a rod having a plate disposed within the pumping chamber. The plate also includes a resilient sealing member on the plate that is engageable with the inner end of the fluid outlet.

In contrast, the pump of the '152 patent does not include a resilient sealing member on the rod that is engageable with the diaphragm as required by claim 20. Thus, for this reason, the subject matter of claim 20 is not shown or described by the '152 patent, such that claim 20 is allowable.

Applicants therefore respectfully request that the Examiner withdraw the rejections to claims 1-3, 6, 11-13, 16-18 and 20.

3. Claim Rejections Under 35 U.S.C. § 103(a)

a) Claims 4-5 and 7-10

In the Office Action, the Examiner has also rejected claims 4-5 and 7-10 under 35 U.S.C. 103(a) as being unpatentable over the '152 patent in view of Lishanski et al. U.S. Patent No. 6,428,289 (the '289 patent) as evidenced by Meyer U.S. Patent No. 4,737,083 (the '083 patent).

Applicants respectfully traverse the Examiner's rejections to claims 4-5 and 7-10 based on the '152, '289 and '083 patents. More specifically, as stated previously, the subject matter of claim 1, from which claims 4-5 and 7-10 depend, is not shown or described by the '152 patent.

The '289 patent is unable to cure this deficiency. More particularly, the '289 patent discloses a plunger housing 40 including a number of wall sections 180 that connect the shaft 30 to the base 190 and are spaced from one another to form a number of openings 200 therebetween. Thus, the housing 40 does not have an enclosed interior space as required by claim 1.

In addition, it is improper to combine the '289 and '083 patents with the '152 patent because these references teach away from one another.

In particular, as stated previously the '152 requires that the movement of the plunger 12 lag with respect to the oscillation of the driving member 9 in order for the pump to function. In contrast, the '289 and '083 patents each teach a plunger that is directly connected to the vibration generating member to move in concert with the vibration generating member. As such, the rod 130 moves in direct concert with the vibration generator 20, which is in direct opposition to the operation of the device of the '152 patent, which requires a lag between the oscillation of the device 9 and the engagement of the plunger 12 with the diaphragm 8.

Therefore, the combination of the '152, '289 and '083 patents both do not disclose the subject matter of claim 1, from which claims 4-5 and 7-10 depend, and are not properly combinable due to the references teaching directly away from one another, such that claims 4-5 and 7-10 are allowable based on their dependency from claim 1. Applicants therefore respectfully request that the Examiner withdraw the rejections to claims 4-5 and 7-10.

c) Claim 15

In the Office Action, the Examiner has also rejected claim 15 under 35 U.S.C. 103(a) as being unpatentable over the '152 patent in view of Bippus U.S. Patent No. 4,154,375 (the '375 patent).

Applicants respectfully traverse the Examiner's rejections to claim 15 based on the '152 and '375 patents. More specifically, with this response applicant has canceled claim 15, rendering the rejection of claim 15 moot.

d) Claim 19

In the Office Action, the Examiner has rejected claim 19 under 35 U.S.C. § 103(a) as being unpatentable over the '152, '289 and '083 patents.

Applicants respectfully traverse the Examiner's rejections to claim 19 based on the '152, '289 and '083 patents. More specifically, as stated previously, the subject matter of claim 17, from which claim 19 depends, is not shown or described by the '152 patent.

The '289 patent is unable to cure this deficiency. More particularly, the '289 patent discloses a plunger housing 40 including a plunger 150 that is engageable with a diaphragm 250 to close an opening 260 in the diaphragm 250. However, the diameter of the plunger 150 is greater than the diameter of the opening 260, such that the plunger 250 cannot extend at least partially through the fluid outlet as required by claim 17.

In addition, it is improper to combine the '289 and '083 patents with the '152 patent because these references teach away from one another.

In particular, as stated previously the '152 requires that the movement of the plunger 12 lag with respect to the oscillation of the driving member 9 in order for the pump to function. In contrast, the '289 and '083 patents each teach a plunger that is directly connected to the vibration generating member to move in concert with the vibration generating member. As such, the rod 130 moves in direct concert with the vibration generator 20, which is in direct opposition to the operation of the device of the '152 patent, which requires a lag between the oscillation of the device 9 and the engagement of the plunger 12 with the diaphragm 8.

Therefore, the combination of the '152, '289 and '083 patents both do not disclose the subject matter of claim 17, from which claim 19 depends, and are not properly combinable due to the references teaching directly away from one another, such that claim 18 is allowable based

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onis dependency from claim 17. Applicants therefore respectfully request that the Examiner withdraw the rejection to claim 19.

CONCLUSION

It is submitted that claims 1-12, 14 and 16-20 satisfy the requirements of 35 U.S.C. §§102 and 103 and each define patentable subject matter. A Notice of Allowance is therefore respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it would help expedite the allowance of this application.

No fees are believed to be payable with this response. However, authorization is given to charge any fees or credit any overpayment to Deposit Account No. 50-1170

Dated: _____

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